

WATER BEETLES FOUND IN THE  
VICINITY OF SHIRAZ, IRAN (COLEOPTERA:  
DYTISCIDAE, NOTERIDAE, HALIPLIDAE,  
GYRINIDAE, AND HYDROPHILIDAE)<sup>1</sup>

SHIDOKHT O. HOSSEINIE

Biology Department, College of Arts & Sciences,  
Pahlavi University, Shiraz, Iran

ABSTRACT

Collections of water beetles were made at regular intervals (biweekly or monthly) over a period of 1 year in 5 aquatic habitats near Shiraz, Fars Province, Iran: 472 specimens were collected in the families Dytiscidae (251), Noteridae (22), Haliplidae (76), Gyrinidae (27), and Hydrophilidae (96). The greatest diversity was found in the Zarghan Marshes, a periodic marsh complex northeast of Shiraz (11 genera, 14 species). The least diversity was encountered in marshes and other situations fed by perennial springs at Barm-E-Delak and Dasht-E-Arjan (5 genera, 5 species combined).

Records of aquatic Coleoptera from Iran are very scanty. The families Dytiscidae and Gyrinidae have been studied most thoroughly, but only a few genera and species are known mainly from the Caspian Sea area, Kerman, and Busher. Very few species have been recorded from Shiraz and its vicinity in Fars Province. The present study attempts to identify the water beetles found near Shiraz and to correlate them with their habitats.

Fars Province in southwestern Iran includes the Zagros Mountains, the Persian Gulf Coastal Plain in the southwest, and parts of the Central Plateau in the northeast. The region of Shiraz lies between the Mand Rud and Kur Rud, rivers which have their sources in the mountains to the north and usually disappear in their lower courses during the summer months. The area is generally over 1500 m in elevation and ringed by mountains over 3000 m high. The rainfall, which is variable from year to year, averages approximately 336 mm/year. Most of the rain comes in the period from December to March. The climate is thus characterized as desert or semidesert with cold winters with low rainfall and hot dry summers. Cereals and livestock are the principal agricultural products of the area.

Due to the irregular and scanty rainfall in some months, most aquatic situations near Shiraz dry up completely or nearly so for part of the year. Only where marshes, ponds, or ditches are fed by perennial springs does water persist throughout the year and then usually only in limited areas.

Collections were made at biweekly or monthly intervals from April 1970 through March 1971 in 5 aquatic situations around Shiraz. The localities and the aquatic beetles collected were as follows:

**Zarghan Marshes:** about 35 km northeast of Shiraz, a fluctuating marsh complex with several springs along the southern edge. The vegetation is

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sparse except in limited areas. It became completely dry by June 1970, and only recently was flooded by winter rainfall (Fig. 1,7).



Fig. 1. The general pattern of the **Zarghan Marshes**. The marshes were partly dried when this picture was taken.

Fig. 2. **Paul-E-Fassa**: This is the enlarged part of the river which then continues beneath the bridge on the right, partly collects into small ditches, but mostly streams toward Lake Maharlu. Collections were made from this area and the ditches on the other side. Water is partly dried up.





Fig. 3. **Barm-E-Shur:** There are two ditches of water here covered by dense vegetation. Most of the collections were made from such ditches. Water is partly dried up, and the area is taken over by cattle for grazing. In the wet seasons the ditches unite into large flooded areas.

Fig. 4. **Barm-E-Delak:** This is the expanded and shallow part of a stream which starts by the perennial spring on the left, where water partly collects into a ditch with dense vegetation. It continues to the right where it is used for irrigation. Collections were made from the ditch and this shallow part of the stream.





Fig. 5. **Dasht-E-Arjan:** The water from the Cheshm-E-Salman springs is collected into this pond. It then passes beneath the road to the other side where it forms a fall, and then supplies the marshes there (shown in Fig. 6).

Fig. 6. **Dasht-E-Arjan Marshes:** Water is supplied from the Cheshm-E-Salman springs. Water was mostly dried up when this picture was taken.



Beetles collected were as follows: DYTISCIDAE: *Agabus* (*Xanthodytes*) *conspersus* (Marsh), 4; *Agabus* sp., 1; *Guignotus geminus* (Fabr.), 4; *Cybister lateralimarginalis* DeG., 2; *Porhydrus lineatus* (Fabr.), 13; *Hygrotus versicolor* (Schall.), 2. NOTERIDAE: *Noterus clavicornis* DeG, 16; *Canthydrus* sp. probably *notula* (Er.), 4. HALIPLIDAE: *Haliphus variegatus* Sturm, 4. HYDROPHILIDAE: *Enochrus quadripunctatus* var. *halophilus* Bedel, 21; *E. ochropterus* Marsh., 24; *E. sp.*, 4; *Paracymus* sp., 1; *Laccobius* sp., 9. Total 109.

**Paul-E-Fassa:** the shallow, enlarged, course of a river and related ditches, about 20 km southeast of Shiraz. This is essentially a pool left in a fluctuating stream. The vegetation is sparse, the water level fluctuates with rainfall, and the situation may be dry for part of the year.

Beetles collected were as follows: DYTISCIDAE: *Cybister lateralimarginalis* DeG., 3; *Cybister tripunctatus* var. *asiaticus* Sharp, 1; *Hygrotus versicolor* (Schall.), 1; NOTERIDAE: *Canthydrus* sp. probably *notula* (Er.), 1.

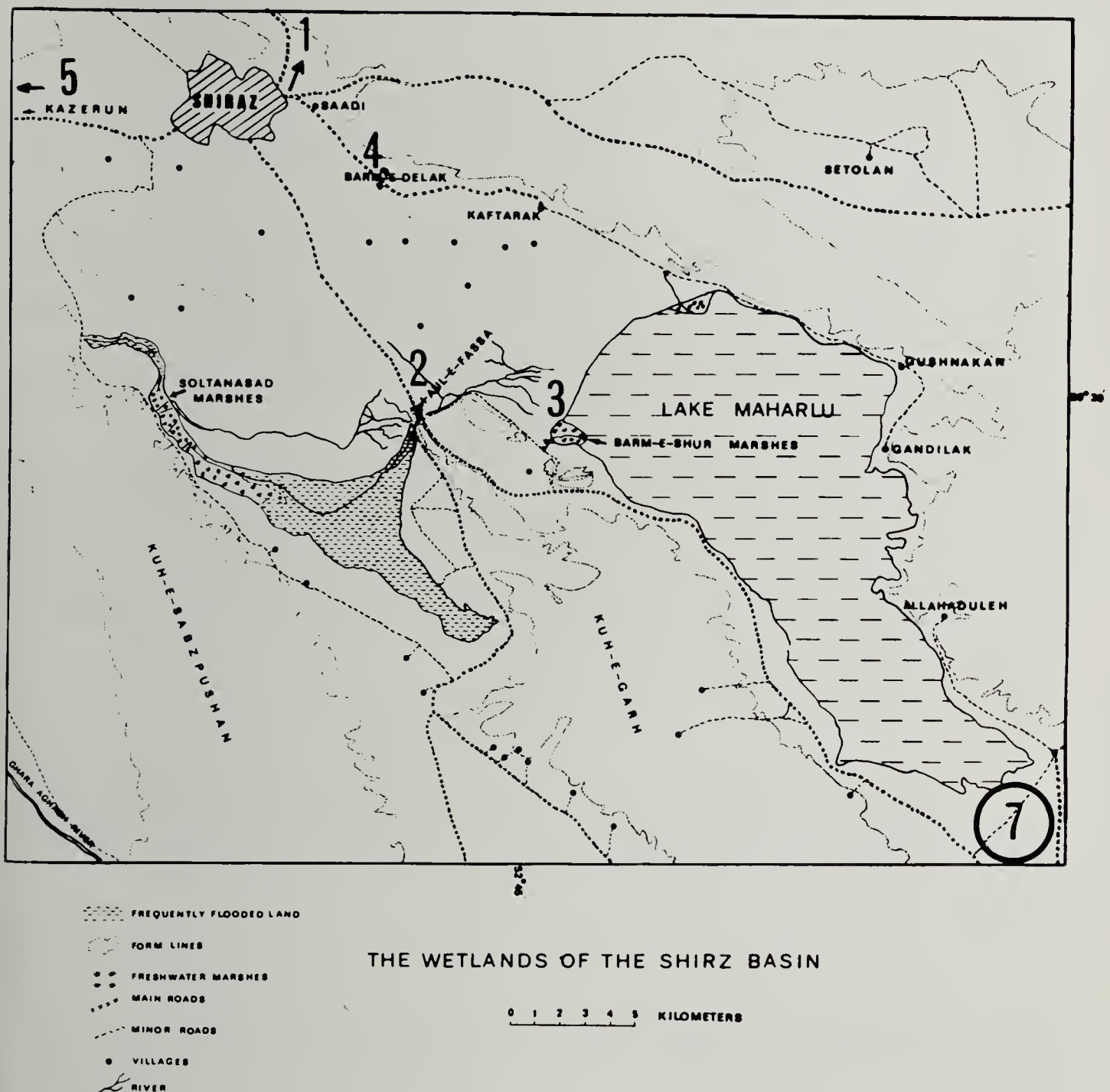


Fig. 7. The wetlands of the Shiraz Basin. The collection areas of Zarghan (1), Paul-E-Fassa (2), Barm-E-Shur (3), Barm-E-Delak (4), and Dasht-E-Arjan (5) are shown.

HALIPLIDAE: *Haliphus variegatus* Sturm, 61. HYDROPHILIDAE: *Paracymus* sp., 1. Total 68.

**Barm-E-Shur:** a marshy area at the northeast end of Maharlu salt lake, the lake fed by perennial springs flowing into Barm-E-Shur stream. Some water is always present in this situation although the level fluctuates. The vegetation is sparse.

Beetles collected were as follows: DYTISCIDAE: *Cybister lateralimarginalis* DeG., 23; *C. tripunctatus* var. *asiaticus* Sharp, 26. NOTERIDAE: *Canthydrus* sp. probably *notula* (Er.), 1. GYRINIDAE: *Gyrinus* sp., 26. HYDROPHILIDAE: *Enochrus quadripunctatus* var. *halophilus* Bedel, 10; *E.* sp., 1; *Paracymus* sp., 2; *Laccobius* sp., 2; *Hydrophilus (Stethoxus) aterrimus* Esch., 19. Total 110.

**Barm-E-Delak:** an area flooded by perennial springs forming a stream from which ditches have been dug for irrigation purposes, about 30 km roughly east of Shiraz. The water level fluctuates, but some water is present in most months of the year. The vegetation is moderately dense in places shading parts of the stream.

Beetles collected were as follows: DYTISCIDAE: *Cybister tripunctatus* var. *asiaticus* Sharp, 10; *Laccophilus hyalinus* (Deg.), 171. HALIPLIDAE: *Peltodytes caesus* (Duft.), 11. *Laccophilus hyalinus* is characteristically associated with running water, and *Peltodytes caesus* is sometimes found in brackish water. Total 182.

**Dasht-E-Arjan Marshes:** the large marsh area about 55 km west of Shiraz, fed by the run-off from the perennial springs of Cheshm-E-Salman near the village of Dasht-E-Arjan and a stream on the east side. Water may be present in at least small areas even during the dry seasons.

Beetles were very scarce in this situation. The following were collected: GYRINIDAE: *Gyrinus* sp., 1. HYDROPHILIDAE: *Hydrophilus (Stethoxus) aterrimus* (Esch.), 2. Total 3.

All of the species identified prove to be widely distributed outside Iran. Some such as *Agabus consperus*, *Peltodytes caesus*, and *Enochrus quadripunctatus* var. *halophilus* Bedel are frequently associated with brackish water. Others such as *Porhydrus lineatus*, *Guignotus geminus*, and *Noterus clavicornis* are characteristic of detritus ponds with decaying plant material according to Balfour-Browne (1950).

#### ACKNOWLEDGMENTS

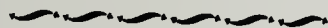
I wish to express my appreciation for the assistance of Dr. Frank N. Young, Indiana University, Bloomington, Indiana. My thanks are also due Mr. L. Cornwallis for allowing me to use maps of the Shiraz wetlands area which he prepared.

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## BOOK REVIEW

**Frederick Valentine Melsheimer, parent of American Entomology.** 1973. Robert Snetsinger. Published by the Entomological Society of Pennsylvania. 86 p. \$4.00 including postage, from Entomological Society of Pennsylvania, 106 Patterson Bldg., University Park, Pa. 16802.

One of the rarest and earliest works on North American Coleoptera is now readily available, along with a detailed biographical account of its author. F. V. Melsheimer published "A Catalogue of Insects of Pennsylvania" in 1806, and Snetsinger could locate only 16 copies in 1973. The volume contained only Coleoptera, many of which were new binomials, although no descriptions accompanied them. The Melsheimer collection, obtained by the Museum of Comparative Zoology (Harvard Univ.) in 1864, contained 14,474 specimens of 4,941 species, of which 10,272 specimens of 2,200 species were from the U. S.

This publication reproduces the entire original rare volume on p. 19-84, with the biography introducing it on p. 1-18. Dr. Snetsinger and the Pennsylvania Entomological Society are to be commended for making such an important work available to the science.—R. E. Woodruff